

Reduce Weather Impact

Summary Description:

This solution set includes improvements to weather information and its use to improve safety, capacity, and efficiency.

Background:

Current NAS weather data are not well integrated into either manual procedures or automated decision-support systems. Data are also not readily available to the full spectrum of decision makers, nor are they sufficiently accurate. In order to support the predicted volume of future air traffic operations, improvements are needed. Unpredicted changes in weather are of prime concern because of the significant impact and disruption they create throughout the entire NAS. The current system does not respond well to unpredicted weather situations or those that evolve differently than expected.

The goal of this solution set will be to proactively plan operations based on improved weather predictions rather than being forced to mitigate impacts once the weather has changed. Improved weather information will result in better decision-making during NextGen operations. This will be accomplished using integrated weather information, including probabilistic forecasts.

Operational Capability Description:

NAS performance will be improved by being able to anticipate the impact of weather on its operations. This will be accomplished through the transmission of consistent and integrated accurate weather information into ATM, air traffic control, flight operations center (FOC), as well as into flight deck tactical and strategic operational decision-making tools. Improvements will be developed to define weather impact, provide improved weather observations and better forecasts. These will enable universal operator access to consistent weather information, which will promote common situational awareness. The improved forecasts, including improved characterization of uncertainty, will assist operators in safely planning and conducting 4D, gate-to-gate, trajectory-based operations that avoid storm hazards and provide comfortable flight conditions. Decision-support systems will directly incorporate weather data and define weather impact. This will allow decision-makers to determine the best response to potential weather-related operational effects, thus minimizing the level of traffic restrictions required in all planning horizons from 0–8 hours.

Improvements will be forthcoming in four functional areas: Weather information integrated into decision-support tools; weather sensing capability required for better forecasting; weather forecasting and processing; and the universal and common access of all information that will be made available to the full spectrum of users.

NextGen Network Enabled Weather (NNEW) will be the core of the NextGen weather support services. It will enable widespread distribution of weather products to enhance collaborative and dynamic NAS decision making. It will

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provide network access to weather information from a myriad of sources (weather processor and radar processor replacement, DoD, NOAA) to all users, as well as a fusion and integration of weather information into NextGen decision-support systems.